

## IP HIGH RESOLUTION MULTI VIEWER

# MV-1640IP



1RU-sized multi viewer which supports IP/12G/6G/3G/HD/SD-SDI and HDMI. Up to 32 inputs and 5 outputs. Supports SFP28 module in redundant 10GbE/25GbE and IP input/output in redundant SMPTE ST 2110\*<sup>1</sup> /SMPTE ST 2022-6 environments\*<sup>2</sup> as standard. An optimal choice when migrating to a mixed MoIP system and or building a new one while maintaining existing baseband system.

### Supports IP/SDI input, SDI/HDMI output and ideal for to check IP materials

#### Video inputs: (Up to 32 inputs):

- IP inputs\*<sup>3</sup>: Up to 16 inputs for HD (3G/1.5G) or up to 4 inputs for 4K\*<sup>4</sup>.
- SDI inputs (optional): Up to 16 inputs for 3G/HD/SD-SDI\*<sup>5</sup>. With an additional option, 8 of 16 inputs are supported for 12G/6G-SDI\*<sup>6</sup>.

#### Video outputs (Up to 5 outputs):

- IP outputs\*<sup>3</sup>: Up to 4 outputs for HD (3G/1.5G)\*<sup>7</sup>.
- SDI outputs (standard): 4 outputs for 3G/HD-SDI, 1 output for 12G-SDI or 1 output for 12G-SDI + 3 outputs for 3G-SDI and 1 HDMI output\*<sup>8</sup>

#### IP:

- Supports SMPTE ST 2110-10/20/30/40, SMPTE ST 2022-6/7
- Uses NMOS IS-04 for stream registration and NMOS IS-05 for stream switching.

#### Windows:

- Freely layout up to 25 windows for one 4K or up to 40 windows for four 2K signals.

\*1 SMPTE ST 2110-10/20/30/40 (time code). \*2 SMPTE ST 2022-7. \*3 SMPTE ST 2110/ST 2022-6. \*4 In the case of SMPTE ST 2110, uncompressed video input only. \*5 With MV-1640SDI installed. \*6 With MV-1640SDI-12G installed. MV-1640SDI is required. \*7 IP outputs same video as SDI output. \*8 HDMI outputs same video as SDI output.

### Features

- Compatible with SFP28 modules and making the unit ready for either 10 or 25 GbE environments.
- Realizes minimum delay of one field (16.6ms) from IP to baseband output.
- Cascading input is supported\*<sup>5</sup>. Combines multiple Multi viewers and displays into more than 16 IP split screens - with low delay.
- Supports Ember+.
- Monitor SFP communication status, result of IP/SDI conversion, PTP status and more via SNMP.
- Layout Manager.
  - Customizes layouts, using the software in Windows® to adjust image size, position, title display, and other settings.
  - Stores layouts on the viewer.
  - Recalls saved layouts directly from the front panel control.
  - Multiple units controlled via layout manager.
- HD to 4K up-resizing and 4K to 2K down-resizing.
- Captures specified frames of streamed video.
- Audio Level Display.
- Audio Monitoring Output.
- Dedicated APP for Windows:
  - Monitor the MJPEG streaming output on Web browser.
  - Pre-alarm recording allows footage to be stored on PC HDD and reviewed when error occurs.
- Cropping.
  - Specifies areas to crop in pixels or by percent.
  - Background image is shown outside cropped areas.
  - Aspect ratio also maintained after partial cropping (of one side, for example).
- Logo display in title areas.
- Stores and displays 4 logo images.
- Tally, Title (4 lines), and Timecode Display.
- Time of day, Timer, and Information Display.
- Can display time based on a 30-hour clock.
- Registers up to 24 schedule timers per day for 1 week.
- Detects frozen frames. (Y/C and Y only).
- Views error logs or user text in the Information Display.
- Flashing borders or error icons/messages to identify screens with errors.

## Options

### Expansion cards

#### ■ MV-1640SDI: 16 input card

Enables to 16 inputs for 3G/HD/SD-SDI. Also, MV-1640SDI allows the MV-1640IP to support cascading input.

### Software

#### ■ MV-1640SDI-12G<sup>\*1</sup>: 12G-SDI 8 inputs option

Enables to 8 inputs for 12G/6G/3G/HD/SD-SDI and 8 inputs for 3G/HD/SD-SDI.

### Remote control units

#### ■ HVS-AUX16A/16B/16C/16D/32A/64A<sup>\*2</sup>: Auxiliary unit



HVS-AUX16A  
(16-buttons)



HVS-AUX16B  
(16-buttons, table-top model)



HVS-AUX16C  
(16-buttons with OLED displays)



HVS-AUX16D  
(16-buttons with OLED display, table-top model)



HVS-AUX32A  
(32-buttons)



HVS-AUX64A  
(64-buttons)

### Option

#### ■ MV-1640IF: Interface option

MV-1640IF allows the MV-1640IP to control screen outputs, tally inputs, time correction, and alarm resets using up to 45 contact closure inputs to the GPI-IO connector on the rear of the unit.

#### ■ MV-1640PS: Redundant power supply

<sup>\*1</sup> MV-1640SDI is required, to be supported. <sup>\*2</sup> Connectable max. 4 units.

## MV-1640IP Datasheet

### 1. Specifications

#### Basic specifications

Temperature	0°C to 40°C
Humidity	30% to 90% (no condensation)
Power	100 V AC to 240 V AC $\pm$ 10%, 50/60 Hz
Consumption	245 VA (235 W) at 100V AC to 120V AC 260 VA (222 W) at 200V AC to 240V AC
Dimensions	430 (W) x 44 (H) x 500 (D) mm EIA 1RU 480 (W) (Including rack mount brackets)
Weight	9.55 kg
Consumables (at 24-hour operation)	Cooling fan: Replace every 5 years Power Supply: Replace every 5 years

#### Technical specifications

Video format			
IP signal	ST2110-20 ST2022-7 (*9)		2160p / 59.94, 50 1080p / 59.94, 50 1080i / 59.94, 50 720p / 59.94, 50
	ST2022-6 ST2022-7 (*9)		1080p / 59.94, 50 1080i / 59.94, 50 720p / 59.94, 50
SDI signal	4K	12G-SDI (*8)	2160p / 60, 59.94, 50
		6G-SDI (*8)	2160p / 30, 29.97, 25, 24, 23.98
		3G-SDI	1080p / 60, 59.94, 50 (Level-A/B) Quad Link (Level-A/B) 1080p / 60, 59.94, 50 Dual Link (Level-A, Level-B DS, Level-B DL) 1080p / 30, 29.97, 25, 24, 23.98
	2K	HD-SDI	1080i / 60, 59.94, 50 1080p / 30, 29.97, 25, 24, 23.98 1080PsF / 30, 29.97, 25, 24, 23.98 720p / 60, 59.94, 50, 24, 23.98 1035i / 60, 59.94
	SD	SD-SDI	525/59.94i, 625/50i
Video input	Supports IP and SDI inputs. (mixed and asynchronous inputs possible)		
IP input	SFP port A/B, C/D (SFP28): 25GBASE-SR Path redundant (ST2022-7) (*9) ST2110-20: 2160p 4 streams or 1080p 16 streams or 1080i 16 streams or 720p 16 streams ST2022-6: 1080p 14 streams or 1080i 16 streams or 720p 16 streams		

SDI input (MV-1640SDI option and MV-1640SDI-12G option required)	HD-BNC x 16 (3G/HD/SD-SDI x 16 or 3G/HD/SD-SDI x 8, 12G/6G-SDI x 8 (*8)) 12G-SDI: 12.0 Gbps (Up to L-4.5CHD 50 m) 6G-SDI: 6.0 Gbps (Up to L-4.5CHD 50 m) 3G-SDI: 3.0 Gbps (Up to 5C-FB 70 m) HD-SDI: 1.5 Gbps (Up to 5C-FB 100 m) SD-SDI: 270 Mbps (Up to 5C-2V 200 m) 10-bit YCbCr 4:2:2
Audio input	
IP	ST-2022-6 or ST2110-30 LevelB (16ch Video synchronous) Max 16 channels for each video: 48kHz / 24-bit
SDI embedded	48 kHz / 16-bit to 24-bit (Video synchronous) Max 16 channels for each SDI input (group x 4) (*1)
LTC input (MV-1640IF option)	BNC x1 SMPTE-compliant timecode: 1.0 Vp-p within ±6 dB
Video output	
HDMI	HDMI (Type-A): 1 output (4K in HDMI2.0 Level B mode) Frame rate: 59.94fps, 50fps 10-bit YCbCr 4:4:4, 8-bit YCbCr 4:2:0 or 8-bit RGB 4:4:4 Limited range
12G/3G/HD-SDI	Up to 3840 x 2160 (12G-SDI or 3G/HD-SDI) BNC x 1 1080p, 1080i, 1035i or 720p (3G/HD-SDI) HD-BNC x 3 10-bit YCbCr 4: 2: 2
IP	SFP port A/B (SFP28): 25GBASE-SR Path redundancy (ST2022-7) (*9) ST2110-20: 1080p 4 streams or 1080i 4 streams or 720p 4streams ST2022: 1080p 4 streams or 1080i 4 streams or 720p 4streams
Audio output	
SDI embedded	Max 16 channels for each video (group x 4) 48kHz / 24-bit
HDMI embedded	Max 8 channels for each video (stereo pair x 4) 48kHz / 24-bit
IP	ST-2022-6 or ST2110-30 (Video synchronous) Max 8 channels for each video 48kHz / 24-bit
Genlock input	-REF IN (MV-1640IF option) BB: 0.429 Vp-p (NTSC), 0.45 Vp-p (PAL) or Tri-level sync.: 0.6 Vp-p 75Ω BNC -INPUT LOCK (SDI IN1 on MV-1640SDI option) 1080/59.94p, 1080/50p(Level-A/B), 1080/59.94i, 1080/50i, 720/59.94p, 720/50p, 525/60, 625/50 -PTP LOCK (SFP port A/B)
Video input/output delay (*2)	HDMI/SDI output <SDI1-4/HDMI Out> 0.5 frame (Field mode) Minimum value 1 frame (Frame mode) Minimum value

Video Window display	<p>4K mode: 25 windows  Breakdown: 2K widow x 9, 1K window x 12  Video/Clock shared 2K window x 2  Video/Clock shared 1K window x 2</p> <p>2K mode: 40 windows  Breakdown: 2K window x 8, 1K window x 23, 1K mirror window x 5  Video/Clock shared 2K window x 2  Video/Clock shared 1K window x 2</p>
Clock Count up timer Count down timer (*3) Schedule timer	<p>Can be displayed in information window. (Internal clock or LTC is selectable for schedule timer.)  Max. number: 4</p>
Background display	<p>Store and display background images  - [3840 x 2160] x 1 (4K layout mode)  - [1920 x 1080] x 4 (2K layout mode)</p>
Logo display	<p>Store and display logo images  - Max: 1024 x 512 (Max. 8 logos can be registered. Max. 4 logos can be displayed.)</p>
Screen layout	<p>User customized layout  - Layouts for each output can be saved on the viewer up to 16 layouts.</p>
Title display	<p>-Title length: Max. 16 characters x 2 lines for each input channel  -Supported characters:  Letters, numbers, symbols and Japanese kana/kanji (JIS 1 and 2)</p>
Tally display	<p>Indicated as a frame (red/green/amber) or marker (red/green/amber) on each input window.</p>
Audio level display (*7)	<p>Up to 16 audio channels of audio level metering per input</p>
Time code display	<p>- Display for 12G/6G(*8)/3G/HD/SD-SDI ancillary timecode (ATC) (*4)  - Reader mode (*5)</p>
Video monitoring	<p>Detects video loss, frozen frames, incorrect luminance/black level, and CRC error.</p>
Audio monitoring	<p>Detects audio loss, silence, and excessive audio levels.</p>
Metadata monitoring	<p>Detects timecode loss error.</p>
Control interface	<p>LAN1: 100BASE-TX/1000BASE-T, RJ-45 x 1  LAN2: Same as above</p>
GPI-IO (MV-1640IF option)	<p>50 pin D-sub (female) x1  -Up to 45-pin for input/ 23-pin for output (selectable, and can be used for input and output)</p>
Layout Manager	<p>Software for customizing window sizes and positions, switching windows, and registering backgrounds and logos (Windows® software)</p>
Live Viewer	<p>Software for video streaming and pre-alarm recording to a PC. (Windows® software)</p>
Data backup	<p>Stores settings internally to the memory (rewrite capacity: approx. 100,000 times) (*6)  Time information is held by a super capacitor.</p>
Daytime accuracy	<p>Monthly difference within ±15 seconds.  Accuracy duration when power is off: 60 hours</p>

(\*1) For 3G-SDI Level-B, only Link-A audio is supported, not Link-B.

(\*2) Using interlaced input

(\*3) Count up/down timer uses an internal crystal oscillator: ±50 ppm within operating temperature. (0°C to 40°C)

(\*4) Ancillary time code (ATC) is not passed through.

- (\*5) Time code from LTC input is not displayed.
- (\*6) Frequent setting changes may impair data retention.
- (\*7) When input audio frequency is under 60Hz, audio level may not be displayed correctly.
- (\*8) MV-1640-12G option required
- (\*9) The frequencies of IP input and MV output are different, the input signals are not properly processed.

**Options**

MV-1640PS	Redundant power supply
MV-1640IF	Interface option
MV-1640SDI	SDI16 input card
MV-1640SDI-12G	Software for supporting 12G/6G-SDI input (for MV-1640SDI)

**Other Option**

HVS-AUX16A/16B/16C/16D/32A/64A (*)	Auxiliary unit (Ethernet LAN Connection)
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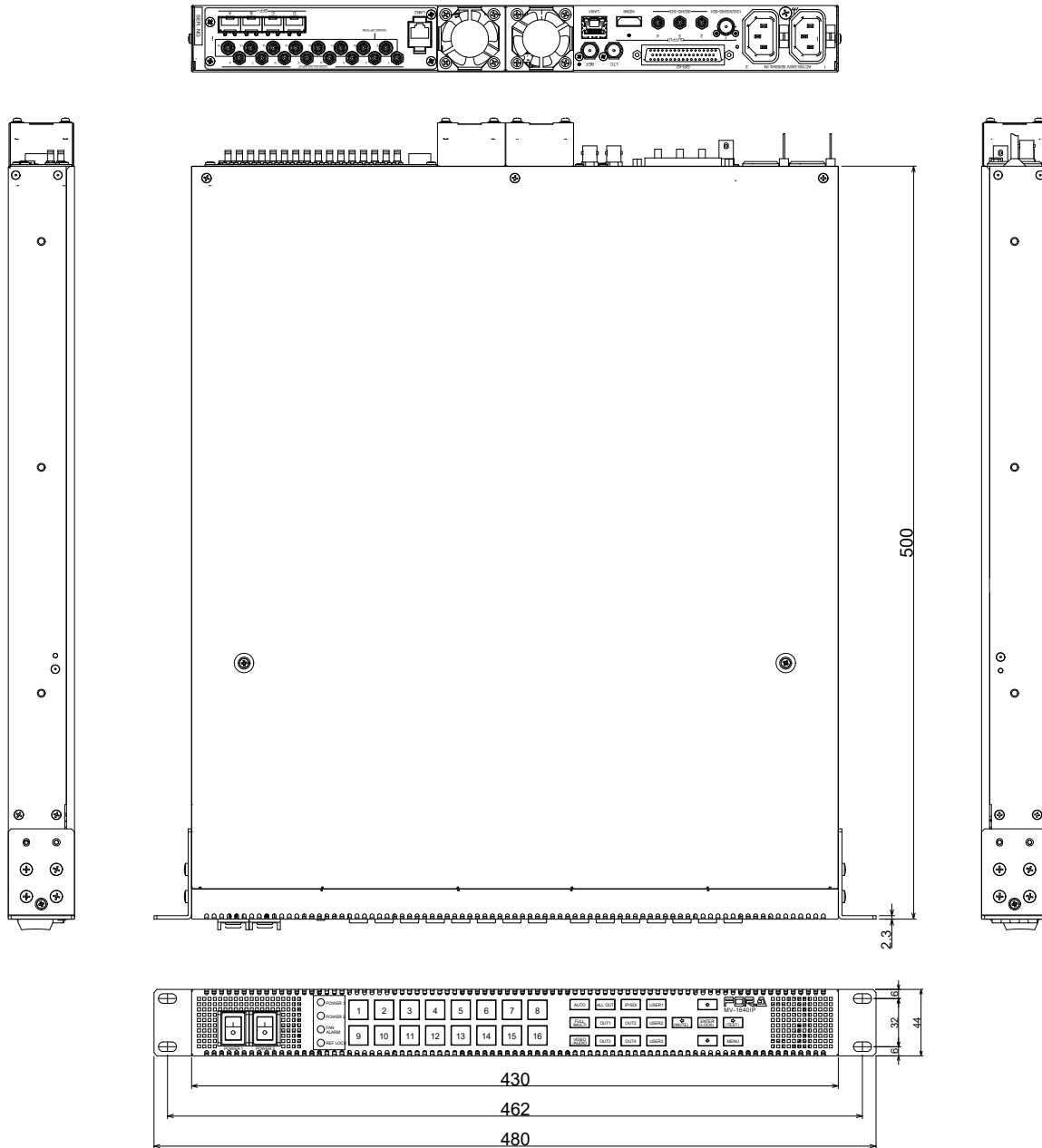
(\*) Connectable max. 4 units

**Accessories**

AC Cord, EIA Rack Mount Brackets, Rubber Feet, HDMI Cable Lacing Bracket, CD-ROM

**2. External Dimensions**

(All dimensions in mm.)





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